WHAT IS CLAIMED IS:

1. A differential amplifier comprising:

first and second input terminals to which a differential signal composed of first and second signals is inputted;

first and second level shift circuits for shifting respective voltages of the first and second signals inputted to the first and second input terminals;

a first differential couple and a first current source for converting the differential signal level-shifted by the first and second level shift circuits to currents;

a second differential couple and a second current source for converting the differential signal inputted to the first and second input terminals to currents;

a third current source and a reference voltage source;

a comparator for comparing the voltage of the first or second signal inputted to the first or second input terminal with a voltage of the reference voltage source;

a switch circuit for selectively supplying a current from the third current source to the first or second current source depending on a result of the comparison by the comparator; and

first and second output terminals to which an output of the first differential couple and an output of the second differential couple are connected commonly.

2. The differential amplifier of claim 1, further comprising:

third and fourth level shift circuits for shifting the respective voltages of the first and second signals inputted to the first and second input terminals, wherein

the second differential couple and the second current source convert the differential signal level-shifted by the third and fourth level shift circuits to currents instead of the differential signal inputted to the first and second input terminals.

3. A differential amplifier comprising:

first and second input terminals to which a differential signal composed of first and second signals is inputted;

first and second level shift circuits for shifting respective voltages of the first and second signals inputted to the first and second input terminals;

a reference voltage source;

first and second voltage limit circuits for limiting the voltage of the differential signal level-shifted by the first and second level shift circuits with a voltage of the reference voltage source;

a first differential couple and a first current source for converting the differential signal having the voltage limited by the first and second voltage limit circuits to currents;

a second differential couple and a second current source for converting the differential signal inputted to the first and second input terminals to currents;

a third current source;

a comparator for comparing the voltage of the first or second signal inputted to the first or second input terminal with the voltage of the reference voltage source;

a switch circuit for selectively supplying a current from the third current source to the first or second current source depending on a result of the comparison by the comparator; and

first and second output terminals to which an output of the first differential couple and an output of the second differential couple are connected commonly.

4. The differential amplifier of claim 3, further comprising:

third and fourth level shift circuits for shifting the respective voltages of the first and second signals inputted to the first and second input terminals, wherein

the second differential couple and the second current source convert the differential signal level-shifted by the third and fourth level shift circuits to currents instead

of the differential signal inputted to the first and second input terminals.

5. The differential amplifier of claim 3, further comprising:

a fourth current source;

a second comparator for comparing the voltage of the first or second signal inputted to the first or second input terminal with the voltage of the reference voltage source; and

a second switch circuit for selectively supplying a current from the fourth current source to the first current source or the second current source depending on a result of comparison by the second comparator.

6. The differential amplifier of claim 4, further comprising:

a fourth current source;

a second comparator for comparing the voltage of the first or second signal inputted to the first or second input terminal with the voltage of the reference voltage source; and

a second switch circuit for selectively supplying a current from the fourth current source to the first current source or the second current source depending on a result of comparison by the second comparator.

7. A differential amplifier comprising:

first and second input terminals to which a differential signal composed of first and second signals is inputted;

first and second level shift circuits for shifting respective voltages of the first and second signals inputted to the first and second input terminals;

a reference voltage source;

first and second voltage limit circuits for limiting the voltage of the differential signal level-shifted by the first and second level shift circuits with a voltage of the

reference voltage source;

a first differential couple and a first current source for converting the differential signal having the voltage limited by the first and second voltage limit circuits to currents;

third and fourth level shift circuits for shifting the respective voltages of the first and second signals inputted to the first and second input terminals;

third and fourth voltage limit circuits for limiting the voltage of the differential signal level-shifted by the third and fourth level shift circuits with the voltage of the reference voltage source;

a second differential couple and a second current source for converting the differential signal having the voltage limited by the third and fourth voltage limit circuits to currents; and

first and second output terminals to which an output of the first differential couple and an output of the second differential couple are connected commonly.

8. The differential amplifier of claim 1, 2, 3, 4, 5, 6, or 7, wherein

the comparator and the switch circuit comprise:

a first transistor having a gate for receiving the first or second signal inputted to the first or second input terminal; and

a second transistor having a gate to which the reference voltage source is connected and

the first and second transistors have respective one terminals connected commonly to the third current source and the respective other terminals connected to the first and second current sources.

9. An operational amplifier comprising:

the differential amplifier as recited in claim 1, 2, 3, 4, 5, 6, or 7; and

a current synthesis and amplification circuit for synthesizing and amplifying

current outputs of the differential amplifier.